

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : Iron, powder, Fe, mean particle size 1-6micron, weight 1000 g, purity 98.0%

Product Number : GF50167133  
Brand : Aldrich  
CAS-No. : 7439-89-6

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

### 1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 2), H228  
Self-heating chemicals (Category 2), H252

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word : Warning

Hazard statement(s)  
H228 : Flammable solid.

Aldrich - GF50167133

Page 1 of 9



|                            |                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------|
| H252                       | Self-heating in large quantities; may catch fire.                                    |
| Precautionary statement(s) |                                                                                      |
| P210                       | Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.                  |
| P235 + P410                | Keep cool. Protect from sunlight.                                                    |
| P240                       | Ground/bond container and receiving equipment.                                       |
| P241                       | Use explosion-proof electrical/ ventilating/ lighting/ equipment.                    |
| P280                       | Wear protective gloves/ eye protection/ face protection.                             |
| P370 + P378                | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. |
| P403 + P235                | Store in a well-ventilated place. Keep cool.                                         |
| P407                       | Maintain air gap between stacks/ pallets.                                            |
| P420                       | Store away from other materials.                                                     |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                  |               |
|------------------|---------------|
| Formula          | : Fe          |
| Molecular weight | : 55.85 g/mol |
| CAS-No.          | : 7439-89-6   |
| EC-No.           | : 231-096-4   |

No components need to be disclosed according to the applicable regulations.

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

#### If swallowed

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

Aldrich - GF50167133

Page 2 of 9



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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### **Suitable extinguishing media**

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

#### **Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Iron oxides

Combustible.

Vapors are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

### 5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

### 5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

### 6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

### 6.3 Methods and materials for containment and cleaning up

Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **Hygiene measures**

Change contaminated clothing. Wash hands after working with substance. For precautions see section 2.2.



## 7.2 Conditions for safe storage, including any incompatibilities

### Storage conditions

Tightly closed. Keep away from heat and sources of ignition.

### Storage class

Storage class (TRGS 510): 4.2: Pyrophoric and self-heating hazardous materials

## 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Appropriate engineering controls

Change contaminated clothing. Wash hands after working with substance.

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

##### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

##### Body Protection

Flame retardant antistatic protective clothing.

##### Respiratory protection

required when dusts are generated.



Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

### **Control of environmental exposure**

Do not let product enter drains. Risk of explosion.

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## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

|                                                 |                                                                             |
|-------------------------------------------------|-----------------------------------------------------------------------------|
| a) Appearance                                   | Form: powder<br>Color: gray                                                 |
| b) Odor                                         | odorless                                                                    |
| c) Odor Threshold                               | Not applicable                                                              |
| d) pH                                           | No data available                                                           |
| e) Melting point/freezing point                 | Melting point: 1,536 °C (2,797 °F) - lit.                                   |
| f) Initial boiling point and boiling range      | 3,000 °C 5,432 °F at 1,013 hPa - lit.                                       |
| g) Flash point                                  | ( )No data available                                                        |
| h) Evaporation rate                             | No data available                                                           |
| i) Flammability (solid, gas)                    | The substance or mixture is a flammable solid with the category 2.          |
| j) Upper/lower flammability or explosive limits | No data available                                                           |
| k) Vapor pressure                               | No data available                                                           |
| l) Vapor density                                | No data available                                                           |
| m) Density                                      | 7.86 g/cm <sup>3</sup>                                                      |
| Relative density                                | No data available                                                           |
| n) Water solubility                             | insoluble                                                                   |
| o) Partition coefficient: n-octanol/water       | No data available                                                           |
| p) Autoignition temperature                     | The substance or mixture is classified as self heating with the category 2. |
| q) Decomposition temperature                    | No data available                                                           |
| r) Viscosity                                    | No data available                                                           |
| s) Explosive properties                         | No data available                                                           |
| t) Oxidizing properties                         | none                                                                        |

### **9.2 Other safety information**

No data available

Aldrich - GF50167133

Page 5 of 9



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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

ammonium compounds

Oxidizing agents

halogen-halogen compounds

nitryl compounds

nitrates

Fluorine

oils

hydrogen peroxide

hydrogen sulphide

Acetaldehyde

Generates dangerous gases or fumes in contact with:

Water

acids

Risk of explosion with:

ammonium nitrate

Ammonium peroxodisulfate

potassium dichromate

perchlorates

Air

nitrates

performic acid

chlorine acid

oils

with

Water

Risk of ignition or formation of inflammable gases or vapours with:

Peroxides

nitryl compounds

hydrogen sulphide

nitrogen dioxide

hydrogen peroxide

halogens

oils

with

Air

### 10.4 Conditions to avoid

Exposure to moisture.

Heat, flames and sparks.

Aldrich - GF50167133

Page 6 of 9



no information available

## **10.5 Incompatible materials**

Strong acids

## **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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# **SECTION 11: Toxicological information**

## **11.1 Information on toxicological effects**

### **Acute toxicity**

LD50 Oral - Rat - 30,000 mg/kg

Remarks: (RTECS)

Inhalation: No data available

Dermal: No data available

### **Skin corrosion/irritation**

No data available

### **Serious eye damage/eye irritation**

No data available

### **Respiratory or skin sensitization**

No data available

### **Germ cell mutagenicity**

No data available

### **Carcinogenicity**

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

### **Reproductive toxicity**

No data available

### **Specific target organ toxicity - single exposure**

No data available

### **Specific target organ toxicity - repeated exposure**

No data available

### **Aspiration hazard**

No data available

## **11.2 Additional Information**

Overdose of iron compounds may have a corrosive effect on the gastrointestinal mucosa and be followed by necrosis, perforation, and stricture formation. Several hours may elapse before symptoms that can include epigastric pain, diarrhea, vomiting, nausea, and hematemesis occur. After apparent recovery a person may experience metabolic acidosis, convulsions, and coma hours or days later. Further complications may develop leading to acute liver necrosis that can result in death due to hepatic coma., Long term inhalation

Aldrich - GF50167133

Page 7 of 9



exposure to iron (oxide fume or dust) can cause siderosis. Siderosis is considered to be a benign pneumoconiosis and does not normally cause significant physiologic impairment. Siderosis can be observed on x-rays with the lungs having a mottled appearance. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## SECTION 12: Ecological information

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Endocrine disrupting properties

No data available

### 12.7 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### DOT (US)

UN number: 3089    Class: 4.1    Packing group: III  
Proper shipping name: Metal powders, flammable, n.o.s.  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

### IMDG

UN number: 3089    Class: 4.1    Packing group: III  
Proper shipping name: METAL POWDER, FLAMMABLE, N.O.S.

EMS-No: F-G, S-G



**IATA**

UN number: 3089 Class: 4.1

Packing group: III

Proper shipping name: Metal powder, flammable, n.o.s.

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**SECTION 15: Regulatory information****SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

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**SECTION 16: Other information****Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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